

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) A method of fabricating an integrated circuit comprising:
forming or providing a solution containing metal ions and carbon nanotubes; and
co-depositing the metal ions and the carbon nanotubes onto a substrate utilizing
the solution to form a metal layer, said co-depositing including a selected one
of co-electroplating, co-electroless plating, co-electrophoretically deposition,
and spin-coating.
2. (Previously Presented) The method of claim 1 wherein the solution comprises a
carbon nanotube suspension.
3. (Previously Presented) The method of claim 2 wherein the carbon nanotube
suspension comprises single wall, arm chair carbon nanotubes.
4. (Previously Presented) The method of claim 2 wherein the solution further
comprises a support electrolyte.
5. (Previously Presented) The method of claim 2 wherein the solution further
comprises a reducing agent.
6. (Original) The method of claim 5 wherein the reducing agent is a reducing agent
selected from the group consisting of hyphosphite, amino-borane, formaldehyde,
glyoxylic acid, hydrazine and redox pairs.
7. (Original) The method of claim 6 wherein the redox pairs is a redox pair selected
from the group consisting of (Ti³⁺, Ti²⁺) and (Fe²⁺, Fe³⁺).

8. (Previously Presented) The method of claim 2 wherein the solution further comprises a complexing agent.
9. (Original) The method of claim 8 wherein the complexing agent is a complexing agent selected from the group consisting of tartrate, citric acid and ethylenediaminetetra-acetic acid.
10. (Previously Presented) The method of claim 1 wherein the metal ions comprise one or more metal ions selected from the group consisting of copper, silver, gold, aluminum, tin, indium, nickel, cobalt, iron, cadmium, chromium, ruthenium, rhodium, rhenium, antimony, bismuth, platinum, zinc, palladium, manganese, iridium, osmium, molybdenum, tungsten and alloys of the afore-enumerated metals.
11. (Original) The method of claim 2 wherein the carbon nanotube suspension comprises:
- a plurality of single-walled, arm chair carbon nanotubes; and
 - a solvent selected from the group consisting of water, ethanol, methanol and ethylene glycol.
- 12-14. (Canceled)
15. (Withdrawn) The method of claim 1 further comprising annealing the electrophoresed substrate.
16. (Canceled)
17. (Previously Presented) The method of claim 1, wherein said co-depositing comprises spin-coating the metal ions and the carbon nanotubes onto the substrate utilizing the solution, and further comprising annealing the substrate with the spun-on solution.
18. (Original) The method of claim 1 further comprising removing excess materials.

19. (Previously Presented) The method of claim 1 further comprising depositing a passivation layer on the metal layer.

20-30 (Canceled)

31. (Currently Amended) The method of claim 1, further comprising, prior to said co-depositing:

forming an etch stop layer on the substrate;

forming an oxide layer on the etch stop layer;

forming an opening in the oxide layer; and

forming a barrier layer on the oxide layer in the opening;

and wherein said co-depositing the metal ions and the carbon nanotubes onto a substrate comprises co-depositing the metal ions and the carbon nanotubes in the opening.

32. (Previously Presented) The method of claim 31, wherein said forming the opening in the oxide layer comprises forming a via.

33. (Previously Presented) The method of claim 32, wherein said forming the opening further comprises forming a trench.

34. (Previously Presented) The method of claim 31, further comprising forming a seed layer on the barrier layer.

35. (Previously Presented) The method of claim 1, wherein said forming or providing the solution containing metal ions and carbon nanotubes comprises forming or providing a solution containing metal ions and solubilized carbon nanotubes.

36. (Previously Presented) The method of claim 1, wherein said forming or providing the solution containing metal ions and carbon nanotubes comprises forming or providing a solution containing metal particles having a diameter in a range of about 10 nanometers to about 50 nanometers.
37. (New) The method of claim 19, wherein the passivation layer comprises one or more passivation materials selected from a group consisting of SiN, SiC, and cobalt.
38. (New) The method of claim 37, wherein the passivation layer comprises cobalt, and wherein said depositing the passivation layer comprises electrolessly plating cobalt on the metal layer.
39. (New) The method of claim 31, wherein the barrier layer comprises a material selected from a group consisting of tantalum, tantalum nitride, tantalum silicon nitride, titanium nitride, titanium silicon nitride, tungsten nitride, tungsten silicon nitride, and cobalt tungsten phosphide.
40. (New) The method of claim 1, wherein said co-depositing comprises spin-coating the metal ions and the carbon nanotubes onto the substrate at a rotation speed of between about 20 and about 100 rpm for a time of between about 1 and about 5 minutes.
41. (New) The method of claim 17, wherein said annealing the substrate with the spun-on solution comprises annealing the substrate at a temperature of between about 200 and about 500 °C for a time of between about 1 and about 200 minutes.